

# Stress, Anxiety, and Depression among Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome Patients

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## Abstract

**Background:** Since 1981, acquired immune deficiency syndrome (AIDS) kills 39 million people globally. This silent killer disease not only affects the patient physiologically and economically but also psychologically too. It is found by various researchers that AIDS patients have a lot of psychological problems such as fear, stigma, distress, aggression, anxiety, stress, and depression.

**Materials and Methods:** The present study constituted a sample of 100 human immunodeficiency virus/AIDS patients with an equal number of male and female, selected through simple random sampling method. Further, all patients were equally divided into two more subgroups on the basis of their marital status (married and unmarried). Anxiety, depression, and stress scale constructed by Bhatnagar *et al.*, were used for the assessment of anxiety, stress, and depression among patients. For statistical analysis mean, *t*-test and Pearson correlation were applied using SPSS 16.0 version.

**Results:** The results demonstrated that AIDS patients have high level of anxiety (14% of patients have moderate level and 59% of patients have severe level), stress (2% of patients have mild, 35% of patients have moderate level, and 63% of patients have severe level), and depression (26% of patients have moderate level, while as 74% of patients have severe level), respectively. Further, results also uncovered that female and married patients have a high level of anxiety, stress, and depression than male and unmarried patients.

**Conclusion:** On the basis of results we conclude that most of the AIDS patients have moderate and severe level of anxiety, stress, and depression.

**Key words:** Acquired immune deficiency syndrome, Anxiety, CD4, Depression, Human immunodeficiency virus, Stress

## INTRODUCTION

Acquired immune deficiency syndrome (AIDS) is a viral disease caused by human immunodeficiency virus (HIV), previously known as lymphadenopathy-associated virus or human T-cell lymphotropic virus 3, found in the infected person's body fluids through semen and vaginal fluids, cerebrospinal fluid, and plasma and biopsy specimens from brain and rectum, blood, and breast milk. HIV is

a retrovirus due to the presence of the enzyme reverse transcriptase, which converts the viral RNA to DNA which then becomes integrated into the genome of the human host cells.

HIV is transmitted through unprotected oral, vaginal, or anal sex, blood transmission, sharing infected needles, and through breastfeeding. HIV attacks the white blood cells known as CD4 or T-helper cells of the immune system; these cells play a key role as they produce portions to fight against the infection and protect the body from infections, illness, etc. HIV minimizes the functions of CD4 cells, which result in the immune system weakened and the body fails to fight infection. If CD4 cells drops <200 cells/ $\mu$ l HIV status will change from HIV positive to AIDS. Researchers believed that AIDS is not the direct cause of death but due to failure of proper function of

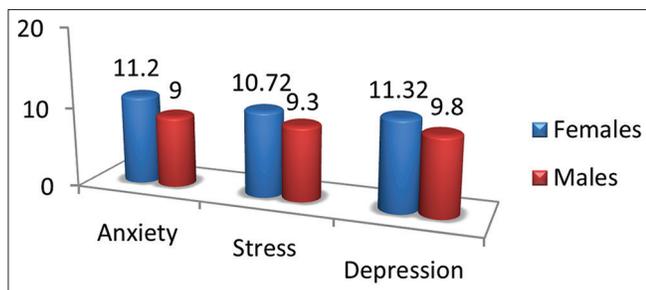
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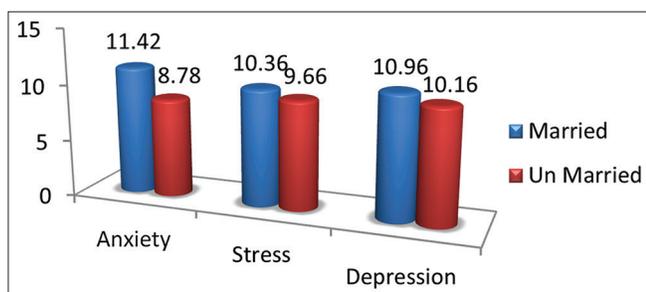
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**Graph 1: Graphical representation of means scores of anxiety, stress, and depression of male and female human immunodeficiency virus/acquired immune deficiency syndrome patients**



**Graph 2: Graphical representation of means scores of anxiety, stress, and depression of married and unmarried acquired immune deficiency syndrome patients**

the immune system an individual is attacked by various diseases such as Kaposi's sarcoma (KS), *Pneumocystis carinii* pneumonia (PCP), and cytomegalovirus, which are enough to kill the patient.<sup>[1]</sup>

AIDS was first clinically reorganized in 1981 in the USA, when the Center for Disease Control noticed KS and PCP was being found in a group of patients hitherto virtually free of these diseases.<sup>[2]</sup>

Since 1986, when Suniti Solomon diagnosis the first case of HIV among female sex workers in Chennai, Tamil Nadu, 2,088,638 people are living with HIV/AIDS and 147,729 people died by this deaths till March 2014, while as in Jammu and Kashmir state 5810 (0.08%) people have AIDS and 146 AIDS deaths have taken place.<sup>[3]</sup>

AIDS patient has severe fatigue, chronic fever, chronic diarrhea, continuously weight loss, skin rashes in private parts, bruising or bleeding, and shortness of breath. Besides, if they also have various neurological as psychological problems such as acute fear, stigma, guilt, grief, distress, aggression, hopelessness, anxiety, stress, depression even suicidal ideation, tendencies, and attempts.<sup>[4]</sup>

Researchers found that people living with HIV/AIDS have various psychological problems such as anxiety, stress, depression, suicidal ideation, loneliness, and hopelessness.

**Table 1: Percentage of anxiety, stress, and depression of HIV/AIDS patients**

Area	Normal	Mild	Moderate	Severe
Anxiety	-	-	41	59
Stress	-	2	35	63
Depression	-	-	26	74

AIDS: Acquired immune deficiency syndrome, HIV: Human immunodeficiency virus

**Table 2: Percentage of anxiety, stress, and depression of male and female HIV/AIDS patients**

Area	Gender	Normal	Mild	Moderate	Severe
Anxiety	Male	-	-	60	40
	Female	-	-	22	78
Stress	Male	-	4	52	44
	Female	-	-	18	82
Depression	Male	-	-	48	52
	Female	-	-	4	96

AIDS: Acquired immune deficiency syndrome, HIV: Human immunodeficiency virus

**Table 3: Percentage of anxiety, stress, and depression of married and unmarried HIV/AIDS patients**

Area	Marital status	Normal	Mild	Moderate	Severe
Anxiety	Married	-	-	14	86
	Un married	-	-	68	32
Stress	Married	-	-	30	70
	Un married	-	-	44	56
Depression	Married	-	-	14	86
	Un married	-	-	40	60

AIDS: Acquired immune deficiency syndrome, HIV: Human immunodeficiency virus

Stress is commonly found among the people living with AIDS, due to poor physical health, the continuous decline of CD4 cells, continuous illnesses, and lower quality of life. Martinez *et al.*, Botha found high rates of stress among HIV/AIDS patients than the general population.<sup>[5,6]</sup>

Anxiety is a useful emotion without it; people are likely to be reckless and engage in activities that could lead to harm or even death. However, when levels of anxiety turn out to be improperly high, they stop being a proportionate response to the threats within the environment and become problematic to the individual experiencing them.<sup>[1]</sup> People with HIV have a high level of anxiety.<sup>[7]</sup> Anxiety is common among AIDS patients; it negatively affects the patient's psychological well-being, results in grief, guilty, hopeless, helplessness, loneliness, etc. They have anxiety about death, loss of job, etc.

Depression is one of the most prevalent and least diagnosed psychological problems found in AIDS patients. It is the most common psychological symptoms found among people living with AIDS. Depression has a negative impact on an individual's quality of life.<sup>[8]</sup> Depressed people

**Table 4: Mean, SD, SED, and t-value of anxiety, stress, and depression scores of male and female HIV/AIDS patients**

Area	Gender	No	Mean±SD	Standard error mean	df	t-value
Anxiety	Female	50	11.20±2.36	0.33	98	5.44**
	Male	50	9.00±1.60	0.22		
Stress	Female	50	10.72±1.07	0.15	98	5.41**
	Male	50	9.30±1.51	0.21		
Depression	Female	50	11.32±1.28	0.18	98	6.33**
	Male	50	9.80±1.10	0.15		

\*\* Significant at 0.01 level, AIDS: Acquired immune deficiency syndrome, HIV: Human immunodeficiency virus, SD: Standard deviation

**Table 5: Mean, SD, SED, and t-value of anxiety, stress, and depression scores of married and unmarried HIV/AIDS patients**

Area	Marital status	No	Mean±SD	Standard error mean	df	t-value
Anxiety	Married	50	11.42±2.17	0.31	98	7.07**
	Unmarried	50	8.78±1.52	0.22		
Stress	Married	50	10.36±1.26	0.18	98	2.41*
	Unmarried	50	9.66±1.62	0.22		
Depression	Married	50	10.96±1.32	0.18	98	2.93**
	Unmarried	50	10.16±1.40	0.19		

\*Significant at 0.05 level, \*\*Significant at 0.01 level, AIDS: Acquired immune deficiency syndrome, HIV: Human immunodeficiency virus, SD: Standard deviation

**Table 6: Correlation between gender, anxiety, stress, and depression**

Parameters	Gender	Anxiety	Stress	Depression
Gender	1	-0.482**	-0.480**	-0.539**
Anxiety	-0.482**	1	0.168	0.147
Stress	-0.480**	0.168	1	0.338**
Depression	-0.539**	0.147	0.338**	1

\*\*Correlation is significant at the 0.01 level (two-tailed)

**Table 7: Correlation marital status, anxiety, stress, and depression**

Parameters	Marital status	Anxiety	Stress	Depression
Marital status	1	-0.578**	-0.237*	-0.284**
Anxiety	-0.578**	1	0.168	0.147
Stress	-0.237*	0.168	1	0.338**
Depression	-0.284**	0.147	0.338**	1

\*\*Correlation is significant at the 0.01 level (two-tailed), \*Correlation is significant at the 0.05 level (two-tailed)

have emotional, motivational, psychological, cognitive, and sociological problems. They are unmotivated, lazy, and negative thinkers and have no control over their emotions.<sup>[1]</sup> People with depression are confused, have slow thoughts, poor interpersonal relationships, and difficulties in retaining information or solving problem. There is currently an enormous amount of research into AIDS being undertaken which highlights various psychological

problems (such as fear, stigma, guilty, hopelessness, anxiety, stress, depression, and suicidal ideation) commonly found among people with HIV/AIDS. Sreelekshmi<sup>[9]</sup> highlighted that fear of stigma and anxiety is commonly found among HIV/AIDS patients. She found that 42.68% of patients have anxiety levels. Results also showed significantly negatively correlated between anxiety and acceptance coping strategy. Shukla *et al.*<sup>[10]</sup> affirmed that 165 (92.1%) HIV/AIDS patients have mild, 9 (5.0%) have mild to moderate, and 5 (2.7%) have moderate to severe level of anxiety, respectively. Simultaneously, Morrison *et al.*<sup>[11]</sup> also found 62.3% of patients have depression and 82.3% of patients have anxiety. While Sewell *et al.*<sup>[12]</sup> highlighted that 70.3 % of AIDS patients have a high level of anxiety. Chandalia and Patoliya<sup>[13]</sup> investigated that female and elderly HIV/AIDS patients have a high level of anxiety than male and young patients. Saadat *et al.*<sup>[14]</sup> also found that women have higher levels of depression and anxiety than men simultaneously men have higher stress than women. However, Belete *et al.*<sup>[15]</sup> highlight that patients recently diagnosed by HIV have a high level of anxiety. On the other hand, Hintze *et al.*<sup>[16]</sup> reported that HIV patients have higher levels of death anxiety and death depression. While as Chandra *et al.*<sup>[17]</sup> confirmed that 30% of HIV patients have anxiety and 40% are depressed. Imasiku<sup>[18]</sup> revealed that HIV/AIDS patients have a higher anxiety level. Results show that there is positively correlated between anxiety and physical illness behavior. Baer *et al.*<sup>[19]</sup> concluded that people with HIV experience a high level of anxiety, fear, distress, depression, suicidal ideation, and guilt. Olley *et al.*<sup>[20]</sup> also found stress-related disorders among AIDS patients. Crandall and Coleman<sup>[21]</sup> also concluded that people with AIDS often experience stress-related symptoms. Sun *et al.*<sup>[22]</sup> reported that due to severe psychological stress 40.1% of AIDS patients thought about taking requital on different people or society. Onyebueke and Okwaraji<sup>[23]</sup> highlighted that HIV patients have high depression level and suicide risk. Ruiz *et al.*<sup>[24]</sup> in their study found that 20–35% of HIV/AIDS patients have depression. Bhatia and Munjal<sup>[25]</sup> highlighted that patients under Anti Retroviral Therapy (ART) have a high level of depression, findings show that out of 160 patients 94 (58.75%) patients were depressed. While as Reis *et al.*<sup>[26]</sup> found mild, moderate, and severe depression symptoms among 63 (27.6%) AIDS patients. Results also show that female patients have more severe symptoms of depression than male patients. Kaneez<sup>[27]</sup> also reported that female HIV/AIDS have a slightly higher level of depression than male patients. However, Barua *et al.*<sup>[28]</sup> researched that female HIV/AIDS patients are more depressed than male patients. Mello *et al.*<sup>[29]</sup> and Shanthi *et al.*<sup>[30]</sup> also reported that female patients are more depressed than male; furthermore, patients under ART have severe depression, while as researchers like Gupta and

Ila<sup>[31]</sup> found that male AIDS patients have more depression than females patients. Simultaneously, Mohammed *et al.*<sup>[32]</sup> also found that male HIV patients are more likely to develop depression than female patients.

## MATERIALS AND METHODS

### Variables

In the present study, two experimental variables (gender and marital status) and three criterion variables (stress, anxiety, and depression) were taken by the investigator.

### Sample

The present study was conducted on a sample of 100 HIV/AIDS patients divided into two equal groups on the basis of gender (50 males and 50 females). Further these two groups were equally subdivided into two more groups (married and unmarried) with 25 patients in each group. The simple random sampling method was used for the selection of the sample. Only those AIDS patients who came under the following criteria were selected in the study.

### Inclusion criteria

The following criteria were included in the study:

- Patients' hails from Pune rural area
- 20–40 years old patients
- Male and female patients
- Married and unmarried patients.

### Exclusion criteria

The following criteria were excluded from the study:

- CD4 count was excluded
- The education level of the patient was not taken
- History of previous psychological as well as physiological illness
- Family type of patients was excluded
- Economic status was also an exclusion criteria.

### Measure Used

Anxiety, depression, and stress scale (ADSS-BSPSA) constructed and standardized by Pallavi Bhatnagar, Megha Singh, Manoj Pandey, Sandhya, and Amitabh was used for the measurement of anxiety, stress, and depression among patients. The scale consists of 48 items divided into three subscales (ADSS consists of 19, 15, and 14 items, respectively). The responses of the items are in “Yes” and “No” form and are scored as “1” and “0,” respectively. Reliability of the scale is found through Cronbach's Alpha and Spearman-Brown coefficient methods and was found 0.81 and 0.89, respectively. While as the reliability of ADSS was found 0.76, 0.75, and 0.61 through Cronbach's Alpha method and through Spearman-Brown coefficient method it was found 0.86, 0.86, and 0.76, respectively.

### Procedure

The study is conducted in Pune rural population consisted sample of 100 HIV/AIDS patients. Before administrating the questionnaires on patients, the investigator gets permission from concerned authority; information about the patients was also received from the doctor in charge at ART center. While meeting the patients, proper rapport was established and they were told the purpose of the meeting. After that ADSS-BSPSA was given to the patient and was asked to read all the instructions carefully before submitting their response. The investigator helps illiterate patients during submitting the responses by making them a proper understanding of the statement. After 10–20 min, the patient handover the questionnaire to the investigator and was thanked for their cooperation. In this way, the data were collected and then obtained data were arranged in tabular form, then systematically analyzed by applying Mean, *t*-test and Pearson correlation by SPSS 16.0 version.

## RESULTS

The main findings of the present study are shown in tables; mean scores are also represented graphically [Graph 1 and 2] [Table 1-7].

## DISCUSSION

The results of the present study demonstrated that most of the HIV/AIDS patients have a severe level of anxiety, stress, and depression. Out of 100 patients, 41% of patients have moderate and 59% of patients have a severe level of anxiety, while 2% of patients have mild, 35% of patients have moderate, 63% of patients have severe level of stress, and also 26% of patients have moderate, and 74% of patients have severe level of depression, respectively. Ruiz *et al.*,<sup>[24]</sup> Martinez *et al.*,<sup>[5]</sup> and Botha<sup>[6]</sup> also found the same results in their researches.

Considering the results on the basis of gender it was found that male patients have a high moderate level of anxiety, stress, and depression than female patients, while as female patients have high severe levels of anxiety, stress, and depression than male patients. Results show that 30 (60%) male patients have moderate and 20 (40%) have severe of anxiety; however, 11 (22%) female patients have moderate and 39 (78%) of patients have severe level of anxiety. It was also found that 2 (4%) male patients have mild, 26 (52%) have moderate, and 22 (44%) have severe level of stress; while 9 (18%) female patients have moderate level and 22 (82%) have severe level of stress. Findings also indicate that 24 (48%) male patients have moderate and 26 (52%) have severe level of depression, simultaneously 2 (4%) female patients have moderate and 48 (96%) have

sever level of depression, respectively. These findings are supported by Amsalu *et al.*<sup>[7]</sup> and Deshmukh *et al.*<sup>[33]</sup>

Further findings divulge that married patients have high sever level of anxiety, stress, and depression than unmarried patients while as unmarried patients have very high moderate levels of anxiety, stress, and depression than married patients. Results indicate that 7 (14%) married patients have moderate and 43 (86%) patients have severe of anxiety, while as 34 (68%) unmarried patients have moderate and 16 (32%) patients have sever level of anxiety. Results also showed that 15 (30%) married patients have moderate and 35 (70%) have severe level of stress; however, 22 (44%) unmarried patients have moderate level and 28 (56%) patients have sever level of stress. Findings also indicate that only 7 (14%) married patients have moderate and 43 (86%) patients have severe level of depression, simultaneously 20 (40%) unmarried patients have moderate and 30 (60%) patients have sever level of depression, respectively.

Findings proved that female patients have high levels of anxiety, stress, and depression than male patients. The obtained mean scores of female patients in all three areas are more than male patients. The mean, standard deviation (SD), and SED of female group were found (anxiety [M = 11.20, SD = 2.36, SED = 0.33], [stress M= 10.72, SD = 1.07, SED = 0.15] and [depression M = 11.32, SD = 1.28, SED = 0.18]), respectively. The mean, SD, and SED of male group were found (anxiety [M = 9, SD = 1.60, SED = 0.22], [stress M= 9.30, SD = 1.51, SED = 0.21] and [depression M = 9.80, SD = 1.10, SED = 0.15]). The obtained *t*-value's of anxiety, stress, and depression were found (5.44), (5.41), and (6.33), respectively, with df 98, all these values are more than tabulation value at 0.01 level of significance, hence our first hypothesis is accepted, Therefore, we can say there is significant difference found between the mean scores of anxiety, stress, and depression of male and female patients. Our findings are supported by Chandalia and Patoliya<sup>[13]</sup>, Saadat *et al.*,<sup>[14]</sup> Barua *et al.*<sup>[28]</sup> and Gupta and Ila.<sup>[31]</sup>

Results also confirmed that there is significant difference between the mean scores of anxiety, stress, and depression of married and unmarried patients, as obtained *t*-values of all three area ([anxiety = 7.07], [stress = 2.14], and [depression = 2.93]) are found significant at 0.05 level in *t*-table. Therefore, our second hypothesis is also accepted. The mean, SD, SED of anxiety, stress, and depression scores of married patients were found (anxiety [M = 11.42, SD = 2.17, SED = 0.31], [stress M= 10.36, SD = 1.26, SED = 0.18], and [depression M = 10.96, SD = 1.32, SED = 0.18]). However, the mean, SD, and SED of unmarried patients were found (anxiety [M = 8.78, SD = 1.52, SED = 0.22], [stress M= 9.66, SD = 1.62, SED = 0.22], and [depression M = 10.16, SD = 1.40, SED = 0.19]), respectively.

Results also found that gender and marital status are negatively significant correlated with anxiety, stress, and depression. The correlation of gender with anxiety, stress, and depression was found (-0.482, -0.480, and -0.539). Furthermore, correlation of marital status with anxiety, stress, and depression was found (-0.578, -0.237, and -0.284), respectively. Therefore, on the basis of these findings, our third and fourth hypotheses are partially accepted.

## CONCLUSION

The present study affirmed that female and married patients are more inclined to anxiety, stress, and depression than male and unmarried patients. It is also found that gender and marital status are negatively significant correlated with anxiety, stress, and depression. On the basis of these findings, it may be concluded that AIDS patients faced a lot of psychological problems throughout life. In this silent killer disease, where medical treatment is essentially ineffective, psychological support is essential for this target group. In this illness individual as well as family counseling should be given priority; furthermore, adequate psychological and emotional support should be made available for these patients. Social as well as family support should be provided them so they cannot feel lonely. Besides government, NGO's, psychologists, social workers, and mental health professionals should come forward to help this target group. However, if government and policy-makers make some legitimate plans for those patients, who are not bolstered by their families, they cannot feel alone and can live a better life.

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